

Commonwealth of Kentucky
Division for Air Quality
PERMIT STATEMENT OF BASIS

CONDITIONAL MAJOR (DRAFT PERMIT) No. F-06-038
MARATHON PETROLEUM COMPANY LLC
201 ASHLAND ROAD, PADUCAH, KENTUCKY
AUGUST 3, 2006
IL-WON SHIN, REVIEWER

SOURCE I.D. #: 021-145-00017
SOURCE A.I. #: 3052
ACTIVITY #: APE20050002 and APE20040001

SOURCE DESCRIPTION:

Marathon Petroleum Company LLC (MPC) owns and operates a terminal in Paducah, Kentucky. The terminal receives product by barge, stores the product in tanks, and then loads the product to tank trucks for distribution. The terminal is currently permitted under Kentucky air operating permit F-96-031 (revision 1).

Operating permit F-96-031 (revision 1) was issued to the terminal in 1998. Marathon submitted a renewal application for this operating permit that included construction of a new gasoline tank on August 29, 2001. On September 9, 2005, Marathon submitted letters to the Division requesting the addition of alternate control devices for the terminal. In addition, Marathon submitted two modified applications on November 21, 2005 and January 9, 2006, respectively. At this time, Marathon is requesting a completely updated conditional major air permit for the Paducah terminal.

The Paducah Terminal is a bulk storage facility that receives gasoline, fuel oil, and kerosene by barge and stores the products in above ground storage tanks (note that jet fuel is considered a subset of kerosene). Ethanol, additives, and diesel dye are received by tanker truck and are injected into the product at the loading racks. All products are shipped out by tank trucks, which are loaded at the loading rack. The loading rack consists of two bays and each bay consists of six loading arms. Occasionally, a tank truck loaded with product may be returned and off-loading at the load rack. This terminal also has the capability of off-loading to barges in case of emergencies. This back loading is not a routine operation at the Paducah Terminal. The facility also has a small oil-water separator, and other miscellaneous equipment.

A vapor combustion unit (VCU) is the primary control for truck-loading emissions. The VCU is a natural gas combustor that is used to control the emissions of volatile organic compounds (VOC) from the loading rack.

On occasion the VCU may need to be down for maintenance. Because emissions control is required by 40 CFR 60 Subpart XX, Marathon has the ability to use backup control devices in order to eliminate long term interruptions of terminal loading operations. The backup emission control is portable vapor combustion units (VCU) owned by Marathon. Marathon owns several of these portable oxidizers, which are regularly tested and maintained by the company for use as backup emission controls at their terminals. The September 9, 2005 letter from Marathon to the Division included documentation that these units will also meet the Subpart XX control requirements.

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Marathon submitted a construction application for Tank 601 conversion to internal floating roof on July 11, 2006. The converted tank will be primarily intended for ethanol storage, but will also be capable of storing gasoline, diesel, distillate, and kerosene. The installation of the internal floating roof on this tank does not affect the terminal's gasoline throughput capacity, which is a function of market demand. Marathon also requests that this revision be considered additional information for the Conditional Major renewal application, and that the change be included in the renewed Conditional Major permit.

COMMENTS:

Type of control and efficiency:

- A vapor combustion unit (VCU) is the primary control for truck-loading emissions with 96.18% efficiency.
- The second backup emission control is portable vapor combustion units (VCU).

Emission factors and their source:

Marathon has calculated maximum emissions from the terminal using estimated future maximum throughputs. Maximum product throughputs were estimated using predicted future maximum market demands, and then increased by a substantial safety factor to give conservative estimates. Tank emissions calculations are performed by the TANK 4.0 software program. Loading rack totals are based on VCU stack test results for gasoline and AP-42 for fuel oil.

Applicable regulations:

40 CFR 60 Subpart XX, *Standards of Performance for Bulk Gasoline Terminals*. Per Section 60.500(a), this rule applies to the gasoline loading to gasoline tank trucks. It does not apply to barge loading.

40 CFR 60 Subpart Kb, *Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984*. Per Section 60.110b(a), the rule applies to storage vessels with capacities greater than 75 m³ (19,800 gal) that are used to store volatile organic liquids, and that commenced after July 23, 1984. Also, Section 60.110b(b) of the rule exempts storage vessels larger than 75 m³, but storing materials with maximum true vapor pressures (tvp) less than 15.0 kPa. There are only two tanks at the terminal subject to the rule, **Tank 601 and Tank 612**. These tanks use an internal floating roof to achieve compliance.

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Regulations not applicable:

- 40 CFR 63 Subpart R, *National Emission Standards for Gasoline Distribution Facilities*. Per Section 63.420(a)(2) of the rule, the regulation applies only to facilities that are part of a major source of HAP emissions. The terminal is a minor HAP source, since maximum HAP emissions are significantly less than 22.5 ton/yr total HAP and 9 ton/yr individual HAP. Therefore, the rule does not apply.
- 40 CFR 63 Subpart Y, *National Emission Standards for Marine Tank Vessel Loading Operations*. The marine vessel loading operations are not an affected source as defined at 40 CFR 63.561. Section 40 CFR 63.561 defines sources with emissions less than 10 and 25 tons to be major sources with HAP emissions from marine tank vessel loading operations less than 10 and 25 tons. The terminal is not a major source of HAP. Also, pursuant to 40 CFR 63.560 Section (b)(2), sources with aggregate marine tank vessel loading throughputs less than 10 million barrels of gasoline annually and less than 200 million barrels of crude oil annually are not subject to the rule. Barge back-loading at the terminal is not a routine operation, and these throughput levels will never be approached.
- 401 KAR 59:101, *New bulk gasoline plants*, and 401 KAR 61:056, *Existing bulk gasoline plants*. These rules do not apply because the terminal is not located in a county or portion of a county which is designated ozone non-attainment, for any non-attainment classification except marginal, and because the terminal is not a major source of VOC emissions.
- 401 KAR 61:055, *Existing loading facilities at bulk gasoline terminals*. This rule applies to existing bulk gasoline loading facilities located in either an urban ozone non-attainment area, or located at a major source of VOC emissions. Paducah is attainment for VOC, and the terminal is not a major source of VOC emissions. Therefore, the rule does not apply.
- 401 KAR 59:050, *New storage vessels for petroleum liquids*. Under Section 1(1) of the rule, a tank could be subject to the rule if it is located in either an urban ozone non-attainment area, or located at a major source of VOC emissions. Paducah is attainment for VOC, and the terminal is not a major source of VOC emissions. Under Section 1(2) of the rule, tanks at non-major sources located in attainment areas could be subject to the rule if their storage capacity is greater than 40,000 gallons and they commenced between 1972 and 1984. The terminal has no tanks that fall within these ranges. Therefore, the rule does not apply.
- 401 KAR 61:050, *Existing storage vessels for petroleum liquids*. Under Section 2(1) of the rule, a tank is only subject to the rule if it is located in an ozone non-attainment area for any non-attainment classification except marginal. Paducah is classified as a VOC attainment area. Therefore, the rule does not apply.
- 401 KAR 59:095, *New oil-effluent water separators*, and 401 KAR 61:045, *Existing oil-effluent water separators*. Under Section 1(1) and (2) of these rules, oil-water separators could be subject to the rule if they are located in either an urban ozone non-attainment area, or located at a major source of VOC emissions. Paducah is attainment for VOC, and the terminal is not a major source of VOC emissions. Therefore, these rules do not apply.

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EMISSION AND OPERATING CAPS DESCRIPTION:

In order to ensure that the terminal remains exempt from the regulations to major sources of criteria and hazardous air pollutant (HAP) emissions, including the Gasoline Distribution MACT (40 CFR 63 Subpart R), Marathon is requesting a Conditional Major permit. Terminal emissions will be limited to less than 90 ton/yr volatile organic compounds (VOC), 22.5 ton/yr total HAP, and 9 ton/yr individual HAP. Monthly and rolling 12-month total emissions will be calculated. Emission calculations and supporting documentation will be retained at the terminal.

PERIODIC MONITORING:

See the permit for Specific Monitoring Requirements.

OPERATIONAL FLEXIBILITY:

None

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec.60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.